

COMMAND AND CONTROL DURING THE FIRST 72 HOURS OF A JOINT MILITARY-CIVILIAN DISASTER RESPONSE

TOPIC(S)

C2 Concept, Theory, and Policy (Track 1)
Organizational Issues (Track 5)

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Civilian emergency response has a number of unique properties that make joint military-civilian operations particularly challenging. Chief amongst these attributes is the collaborative nature of civilian emergency response that often includes multiple disciplines such as police and fire, each with its own mission, protocols, role, resources, and command structure. Furthermore, while military C2 is designed to proactively manage multiple tactical operations in the context of a larger strategic objective, civilian operations are planned to reactively contain a single incident. This combination makes joint response particularly exigent during the first 72 hours of an incident, when diverse technical and human resources must rapidly fuse under crisis conditions to mount an effective response.

This paper focuses on rapidly linking military and civilian C2 infrastructures for joint disaster relief operations. We first compare civilian and military C2 models and discuss differences that impact collaborative response. We then discuss purely technical requirements, such as communications, messaging, and network interoperability. The paper will then analyze unique civilian elements such as self-dispatched responders, emergent volunteers, total or partial disintegration of civilian command, role of law, and local customs. We conclude with a proposed model for joint operations suitable for the first 72 hours of a major incident.

Keywords: Disaster Management, Military-Civilian Coalition, Command and Control.

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2007		2. REPORT TYPE		3. DATES COVERED 00-00-2007 to 00-00-2007	
4. TITLE AND SUBTITLE Command and Control During the First 72 Hours of a Joint Military-Civilian Disaster Response				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Air Force Research Laboratory, 26 Electronic Parkway, Rome, NY, 13511				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES Twelfth International Command and Control Research and Technology Symposium (12th ICCRTS), 19-21 June 2007, Newport, RI					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 34	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

1. INTRODUCTION

By all accounts Hurricane Katrina was one of the most significant catastrophes ever experienced in the United States. It was the largest natural disaster in US history.

Together, hurricanes Katrina and Rita left 1500 dead, caused over \$90 billion in damage, and displaced nearly 100,000 households. Katrina's 125 miles per hour sustained winds traveled 150 miles inland before losing hurricane strength, flooded 80% of New Orleans and forced 23,000 people to seek refuge in the Superdome. Eighteen months after the storm, New Orleans has regained only about one half of its previous population base, significantly reducing the tax base and stressing city services. Figure 1 enumerates events and timelines relevant to this research. A narrative of the Katrina disaster is also included in the Appendix to this paper.

August 29, 2005	<ul style="list-style-type: none">• Katrina makes landfall (6AM CDT)• 20,000+ in Superdome• 551 National Guardsmen in Superdome• New Orleans flooded (levee breach)• Communications infrastructure lost• New Orleans Airport closed• Most roads to/from New Orleans are under water• Mayor predicts "significant" loss of Life• Looting begins
August 30, 2005	<ul style="list-style-type: none">• Mayor projects death toll at thousands• Communications infrastructure still lost• FEMA and Louisiana Governor argue about who should provide busses¹• Looting spreads throughout the city
August 31, 2005	<ul style="list-style-type: none">• New Orleans police ordered to abandon Search & Rescue• Evacuation plan countermanded by DOD: 24 hour delay while DOD assumes control²• Communication infrastructure still unavailable• New Orleans is almost in anarchy with total loss of control by the civil authorities• Persistent media coverage fuels national anger over evacuation delays.
Figure 1: Relevant events from Katrina's first 72 hours	

¹ A. Gheytanchi, et. al, The Dirty Dozen: Twelve Failures of the Hurricane Katrina Response and How Psychology Can Help, In Press, American Psychologist.

² Ibid

1.1 LESSONS LEARNED: THE FIRST 72 HOURS

The coalition response to Katrina has been the subject of numerous books, several congressional inquiries, studies and analysis by the GAO, FEMA, DOD and universities. Though each has viewed the response from a different angle, the striking overlap was that, almost without exception, all challenges were traced to the initial stages of the response – the first 72 hours.

Using the Katrina response as a case study, we believe that the challenges of the first 72 hours of responding to a major incident have not yet been adequately addressed in the National Response Plan (NRP). We propose a model that modifies the current Command and Control Model, as prescribed by the NRP and the National Incident Management System (NIMS) for the first 72 hours of a major disaster.

2. RESPONDING TO CATASTROPHIC SITUATIONS

For the purposes of this paper, we will use the term “disaster” to mean a catastrophic disaster: any event that threatens many lives and property where resources required in order to mount an effective response *significantly* exceeds what is locally available. The scale considered here is one that requires escalation of response management to rapidly include deployment of federal resources as, for example, occurred in Katrina’s aftermath.

It is generally accepted that the first 72 hours of a disaster are the most crucial period in a major disaster response. It is also recognized that citizens and communities are very likely to be on their own during the early stage of a disaster as response efforts get underway. Recognition of this fact has led to the creation of the Citizens Emergency Response Teams (CERT³) with the explicit goal of community self-care during the early stages of a disaster. The need for self-reliance within this period was also clear during the response to Katrina. Of the 50,000 National Guard and 20,000 federal military personnel eventually deployed to the affected areas, only about 11,000, or about 16% were on the ground within the first three days of the event, August 29 – Aug 31, as shown in Figure 2. This includes approximately 9,000 pre-staged National Guard personnel.

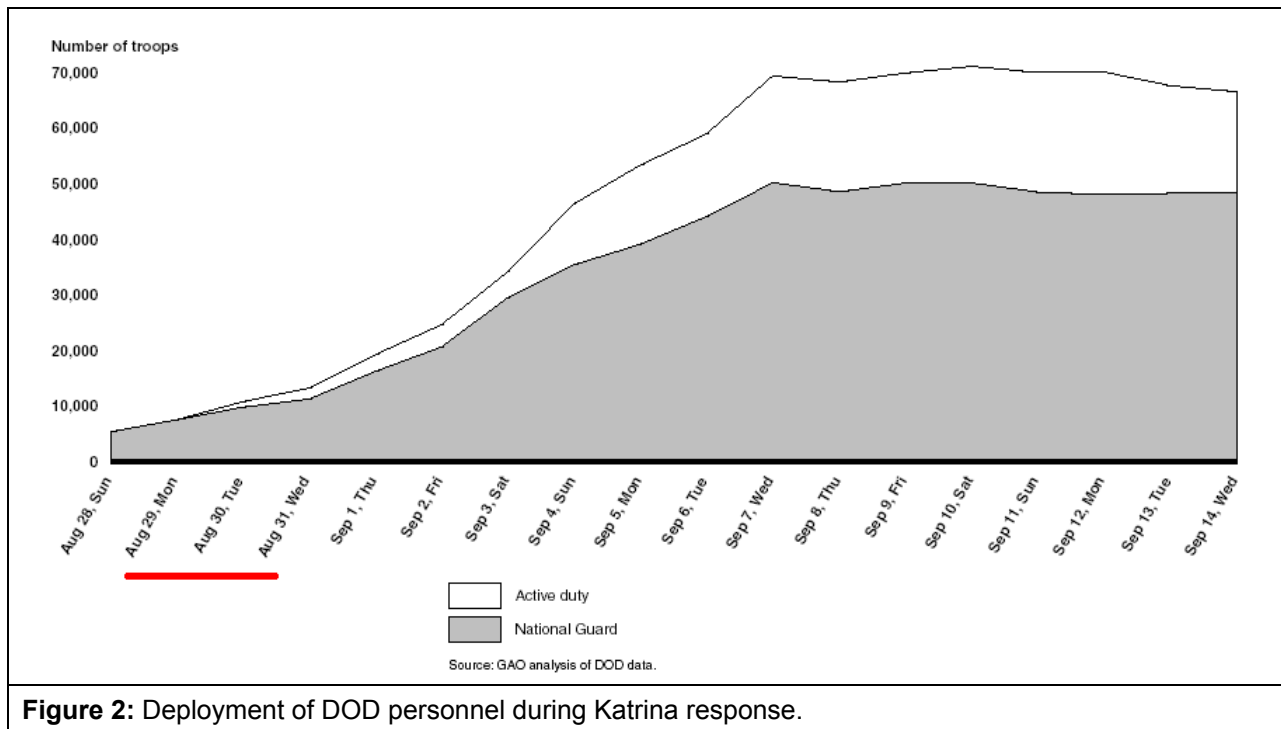


Figure 2: Deployment of DOD personnel during Katrina response.

³ <https://www.citizencorps.gov/cert/>

As events escalate, progressively more resources are allocated to a catastrophic situation, eventually including federal resources such as the DOD. The National Response Plan (NRP) and the National Incident Management System (NIMS) are designed to promote an orderly and systematic integration of various resources to support the response. This objective, however, is extremely difficult to accomplish in civilian-military coalitions. The Katrina response, for example, clearly highlighted a multitude of challenges in coalition command and control.

2.1 BACKGROUND

Before considering what some of these key challenges to military-civilian disaster response are, as well as the means of addressing them, it is appropriate to review the foundation of Command and Control (C2) in both military and civilian contexts⁴.

2.1.1 MILITARY COMMAND AND CONTROL

Military C2 is fundamentally a *support* instrument. It is designed as a coordination platform that vests significant decision-making power in commanders, intended to enable them to efficiently and successfully complete a mission or attain an objective. Military C2 is a structured, tightly coupled, hierarchical environment where concepts, such as command, repeat at different layers of hierarchy, though with changes in span of control, i.e. how many staff one commands, or in scope, i.e. from tactical to strategic.

The key to success is swift, efficient, and cost-effective victory. While the actual definition of victory varies, it is generally considered to be changing enemy's behavior. It is also commonly accepted that the best way to overcome an enemy is by attacking its strategy⁵. This approach frames military C2 in a temporal structure that is typically longer than is required for disaster response⁶.

2.1.2 CIVILIAN COMMAND AND CONTROL

Civilian C2 is fundamentally a *functional* instrument. It is designed as a tool to maintain authority with emphasis on distributed decision-making that is intended to provide ample leeway for prevailing local customs, cultures, and needs. While there is an implied hierarchy, there is no formal overarching hierarchical organization and the relationships are loosely coupled. For example, while cities are subject to state regulations, mayors do not "report" to governors. The hierarchy is typically enforced through financial bonds, treaties, lawsuits, bureaucratic controls, or through specific umbrella organizations created for a particular purpose.

The key to success of civilian C2 is considered to be the full realization of the democratic process. While efficiency is desired, it is not the first priority and is often overshadowed by the desire to encourage debate and collaboration, as well as the goal of insuring participant equity and equal treatment. This approach also frames the civilian C2 in a temporal structure that is typically longer than is required for disaster response.

2.1.3 INCIDENT COMMAND (ICS)

Incident Command (IC) is fundamentally an *organizational and tasking* instrument. It is designed to methodically focus responders on managing a single incident, with escalation mechanisms put in place that expand the response as the incident grows. The incident response is capability based. Therefore a statistically significant majority of incidents typically include two or more responder organizations such as

⁴ We discuss the C2 in both contexts to maximize the value of this work to its intended interdisciplinary audience. The background sections on C2 are self-contained and may be skipped without loss by those familiar with the particular discipline.

⁵ G. Hammond, *The Mind of War: John Boyd and American Security*. Washington, D.C.: Smithsonian Institution Press. ISBN 1-56098-941-6 and ISBN 1-58834-178-X (2001)

⁶ Militaries are evolving worldwide to incorporate stability and reconstruction operations as their key mission areas in addition to their traditional warfighting role. Due to their long-term horizon, both of these mission areas also require slower tempo that is required for a major disaster response.

police and fire, each with its own command structure. As incidents grow in complexity, response organizations are added – with each organization potentially adding another command and control hierarchy to the mix. As a result, large incidents typically result in lateral and hierarchical command formations, creating a challenging environment both in terms of control as well as overall success of the operation.

The key to the success of incident command is minimized loss of life or property. This requires speed, not only in the part of the responders, but the supply chain that supports them, particularly if the response requires escalation. This approach frames the incident C2 in a temporal structure that is fast by design. Since incident C2 typically operates within the overarching military or civilian C2, the only way it can be successful is if the overarching command (a) does not introduce any friction within the response chain; and (b) fully supports the entire spectrum of response operation, particularly for a large-scale response operation.

2.2 DISASTER MANAGEMENT

Disaster management typically has five phases: prevention, preparedness, response, relief and recovery⁷. There are two models of disaster management: The community model and the command and control model. They share a common root – Civil Defense operations in the world wars⁸.

2.2.1 COMMUNITY MODEL

After WWII ended the community model evolved differently in various parts of the world but, mostly, retained its formal and quasi-military model⁹. After the cold war ended and communities across the globe began to experience growth and prosperity, the civil defense model began to split into two: an institutionalized model and a community volunteer model.

The institutionalized model replaced its formal command and control hierarchy with a management infrastructure, somewhat similar to a corporation. The American Red Cross¹⁰ is an example of many Non-Governmental Organizations (NGO) that often participate in disaster response. The community volunteer model has very little formal structure and is often managed by committees or groups of more senior volunteers, e.g. the Citizen Corps.

2.2.2 COMMAND AND CONTROL MODEL

Governments are increasingly called on to respond to disasters, both within their borders as well as in the international community. The command and control model is a natural byproduct of how governments work when their military may be involved. As terrorism has evolved from *duration events*¹¹ to large-scale *conclusion events*¹² targeting civilians, the military's role in disaster response has also expanded. Militaries are now involved in prevention and planning phases of disaster management and their role is no longer limited to response operations. As a result command and control has become the prevailing model of disaster response in almost all industrial nations.

⁷ Fema.gov

⁸ Fischer, H., The Deconstruction of the Command and Control Model: A Post-Modern Analysis, Annual Meeting of European Sociological Association, Helsinki, Finland, 2001.

⁹ Dynes, R., Quarantelli, E., The Role of Civil Defense in Disaster Planning, Technical Report, Disaster Research Center, Ohio State University, 1975.

¹⁰ The American Red Cross performs a subset of functions performed by Red Cross organizations in other countries.

¹¹ For completeness: A duration event is a (terrorist) activity that is designed to hold attention for a period of time before conclusion. Hijacking and hostage capture are two examples. Duration event give responders to potentially prevent a deadly conclusion.

¹² For completeness: A conclusion event is a terrorist activity that is designed to beget attention after the act has concluded. WTC terrorist attacks and suicide bombings are two examples.

The United States uses the command and control disaster management model. In that context the National Response Plan defines the coalition response protocol while the National Incident Management System provides the doctrine.

2.2.3 NATIONAL RESPONSE PLAN (NRP)

After the 9-11 terrorist attacks and creation of the Homeland Security Department, the President issued the Homeland Security Presidential Directive 5 (HSPD-5), designed to create a standard, national model for disaster response in the United States. As part of its tasking, HSPD-5 also instructed the Secretary of Homeland Security to develop two specific items: the National Incident Management System (NIMS) and the National Response Plan (NRP¹³).

The US Government generally describes the NRP as the mechanism for coordinated response. It is specifically designed for any response that requires coalition federal to local support. It is a persistent plan in that it is always in effect, albeit with different range of actions than when implemented to support an incident. On going actions typically include situational reporting and analysis. The plan must, however, be implemented (invoked) in response to a specific situation or “incident of national significance”¹⁴.

The NRP is a coordination instrument and has no command or control component¹⁵. Its main goal is to facilitate inter- and intra-agency coordination of federal resources when responding to an incident.

2.2.4 NATIONAL INCIDENT MANAGEMENT SYSTEM (NIMS¹⁶)

United States emergency response is a tiered system and incident response and management is handled locally. When local resources are insufficient to mount an effective response, either for availability or technical reasons, local leaders will invoke Mutual Aid treaties that are typically in place between neighboring jurisdictions. When these aggregated resources are also exhausted, state resources are requested. In turn states will ask the federal government for support if needed. It is generally assumed that local-to-state resources are sufficient to manage a disaster for several days since, even with foreknowledge of an event such as a hurricane, resources must be staged at a reasonable distance. Response time may be longer in the case of unanticipated events.

Once a response operation begins, it typically proceeds along a pre-determined continuum. In this context, “pre-determined” refers to operational protocols that govern all aspects of the response, including command and control, resources, and communications. Prior to a national model these protocols were quasi-standard and experience-based, not all jurisdictions adopted the same protocols, adopted them at different times, or made slight variations.

The National Incident Management System is designed with the explicit purpose of creating a standardized response protocol to any event, including catastrophic disasters, or other events where military support may be required.

2.2.5 MILITARY SUPPORT TO CIVIL AUTHORITIES

Homeland Security Presidential Directive 5 (HSPD-5) is the foundation for the DOD civilian support. It states: “The Secretary of Defense shall provide military support to civil authorities for domestic incidents

¹³ Finalized 12/2004. Last updated 5/2006

¹⁴ August 30, 2005 Secretary Michael Chertoff invoked the National Response Plan the day after Hurricane Katrina hit the Gulf Coast on the morning of August 29, 2005. By so doing, the Secretary assumed the leadership role triggered by the law to bear primary responsibility to manage said crisis. The invocation occurred due to the inability of local and state government to handle the situation. On September 22, 2005 In advance of the landfall of Hurricane Rita, Chertoff declared the storm an incident of national significance and put preparations in place in the gulf region of Texas.

¹⁵ There are a number of potentially significant ambiguities in the plan that can be interpreted as otherwise.

¹⁶ NIMS is an evolution of a methodology developed by California Firefighters who routinely battled large wild fires in heterogeneous formations that included multiple professional, seasonal, and volunteer firefighters from multiple jurisdictions. See <http://www.fema.gov/emergency/nims/>

as directed by the President or when consistent with military readiness and appropriate under the circumstances and the law. The Secretary of Defense shall retain command of military forces providing civil support.” The support is typically sub-categorized support to civil authorities, support to civilian law enforcement, and assistance for civil disturbances. The DOD is explicitly directed to a support role and therefore is never the lead agency. The lead agency for providing support to civil authorities and civilian law enforcement is the Department of Homeland Security. The lead agency must explicitly request DOD support and resources. When activated, military support is provided with the National Guard as well as Active Duty or Reserve personnel, and assets.

2.3 GAPS AND MISALIGNMENTS

Successful coalition formation and execution has been the subject of much research. While theoretical research in the specific domain of coalition disaster response may be recent, coalition performance, and the underlying factors for success, has been extensively analyzed. As an example, consider that over a decade before Katrina, Maurer identified issues of particular import to coalition operations as “External Influences, People, Operational Factors, Interoperability”¹⁷ – factors that certainly appear to have played a significant role during the Katrina response. However, even a cursory study of the NRP and NIMS shows that External Influences, e.g. the media, or People, e.g. the responders, were not factored in the plans. This is an important gap that, in our opinion, must be addressed to ensure success of future coalition disaster response.

Another contributing factor is the foundational misalignment of the coalition command and control structure. In the context of coalition disaster response, coalitions need to rapidly fuse at least two foundationally different command and control models: the military and civilian¹⁸. As we discussed earlier, there are key differences in military and civilian command and control doctrines making rapid coalition formation a challenging task.

Military-civilian coalitions must also contend with the political aspects of a unified command. The saying “success has many fathers but failure is an orphan” has never been truer than in the context of coalition disaster response. The analysis of Katrina’s aftermath has repeatedly highlighted as issue the relationship between mayor Nagin and Governor Blanco (both Democrats), and their collective relationship to the Republican administration. The fact is, managing disaster response has political ramifications. This is an understandable attribute of military-civilian coalitions and, as we witnessed during the Katrina response, political fallout from these situations can end careers. The fact also is that mayors and governors get elected and it is the elected officials who appoint civilian emergency management leaders. This creates a potential area of conflict for coalition disaster management because the local authorities have incentive to be perceived as competent individuals who actively respond to the disaster. At the same time, state and federal authorities have incentive to be perceived as competent individuals and organizations that actively support the local responders. This subtle delineation, execution vs. support, is often the source of many conflicts. Given the ubiquitous media sources, from the traditional news media to amateur bloggers, the political dimension must be considered an intricate and delicate part of disaster response, particularly as information is readily and globally piped into computers, TV, and radio.

The proposed model resolves these, and many other command and control related issues, during the first 72 hours of the event.

¹⁷ M. Maurer, *Coalition Command and Control*, National Defense Press, Washington, D.C., 1994.

¹⁸ We assume that incident command and control in military and civilian operations are similar, in this context, to the extent that won’t have any material relevance to this discussion.

3. PROPOSED COMMAND AND CONTROL MODEL

The proposed command and control model is designed to mitigate the challenges broadly discussed in the previous section. A precursor to escalation of an incident to the federal level is activation of the National Guard. The activation can be regarded as a reliable signal that an incident may expand in scope to require federal intervention. Therefore, the proposed model assumes pre-staging or rapid deployment of the National Guard to the disaster area and the model is to be implemented as soon as it is necessary to activate the National Guard. Additional relevant considerations are: if it is clear that the scope of incident might scale to (a) impact a significant percentage of population, infrastructure, food or water sources, or geographic area; and (b) require federal assistance. We would like to emphasize that not all federalized incidents are catastrophic.

The foundation of the model is “centralized (unified) command, decentralized control”. While proven efficient and effective in coalition military operations such as the Gulf War, the model has been difficult to implement in the military-civilian context, with reasons ranging from legal to political to protocol. In fact, one of the key lessons learned from Katrina was that the lines of authority had not been clear¹⁹.

A key aspect of the proposed model is specifically designed to substantially reduce the political considerations by de-conflicting command and control challenges that arise when rapid force integration is attempted. As discovered by the GAO²⁰, for example, “One critical issue that needs to be resolved in any large, integrated operation is the decision concerning command and control of the forces. This issue had not been resolved prior to Hurricane Katrina and was a subject of discussion during the critical first days after Katrina made landfall. Ultimately, the military took a pragmatic approach to deconflict the operation with separate active-duty and National Guard chains of command. The federal forces—the active component and mobilized Reserve volunteers—were under the command and control of Northern Command’s Joint Task Force-Katrina, while the National Guard forces, including those from other states, were under the command and control of the governors in Mississippi and Louisiana.”

3.1 PRINCIPLES

The proposed model modifies the current Command and Control Model (NIMS+NRP) for the first 72 hours of a major disaster. The proposed model is based on the following key elements:

I. SECURITY IS THE SINGLE MOST IMPORTANT AND IMMEDIATE TASK

Historically catastrophic events have resulted in an almost immediate breakdown of law and order. During the 1906 San Francisco earthquake, for example, looting was rampant and citizen militia groups began to take up arms – which further exasperated the situation. During Katrina, we witnessed much of the same as the rescue efforts seemed to drag on.

Katrina demonstrated the need to explicitly address this (and similar) issues during the first 72 hours. This gap was clearly demonstrated when on August 31st Mayor Nagin ordered the New Orleans police department to leave their search-and-rescue missions and stop looters²¹.

In our opinion neither the NIMS nor the NRP acknowledge this phenomenon or place enough emphasis on security²². While it may be argued that NIMS addresses this through emphasizing Incident Action Plans (IAP), we believe there are particular security issues that warrant specific attention.

¹⁹ Ibid.

²⁰ Ibid

²¹ Staff reporter(s), New Orleans mayor orders looting crackdown, Associated Press, August 31, 2005, available on <http://www.msnbc.msn.com/id/9063708/>

²² This issue was acknowledged and explicitly called out in the lessons learned document published by the White House. Available on whitehouse.gov

II. COMMUNICATION CAPABILITY IS VITAL TO RESPONSE OPERATIONS

According to the GAO's findings²³, the severe damage to the communications infrastructure created significant difficulties and hampered rescue efforts due to the resultant lack of situational awareness by civilian and military officials.

III. FIRST RESPONDERS ARE LIKELY TO ALSO BE VICTIMS

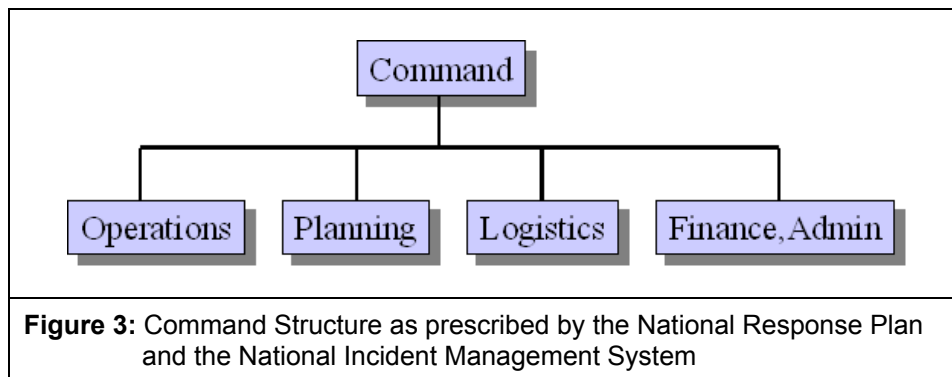
In our opinion, the NRP simply overlooks the facts that in catastrophic events local responders are, most likely, also victims. They are expected to put aside their own emotions, concern about their own families or property, and show up and do their job. This simply is not a realistic position; city of New Orleans, for example, fired 45 police officers and 6 civil employees for desertion and on Oct. 31, 2005, they still were not able to locate approximately 240 of its 1450-member force²⁴. Neither the NRP, nor any of the subsequent analyses that we are aware of, acknowledges this attribute of catastrophic events, and therefore it is not mitigated.

IV. PSYCHOLOGICAL²⁵ DIMENSION OF DISASTER RESPONSE MUST BE PROACTIVELY MANAGED

In some respects Katrina will forever be an example of how the poor are treated in America. This is unfortunate since the rescue efforts were not biased in anyway, shape or form²⁶. The heavy media coverage, and the innuendo that followed, created a dangerous situation in New Orleans. The reinforced sense of being abandoned by the system, coupled with the emotional aftermath of the catastrophe, and the local and state authorities grave error to direct the masses to the Superdome without sufficient support, created a ripe environment for breakdown of law and order. While the New Orleans' civil government did not fully disintegrate, it did teeter as the police almost completely lost control of the city and rescue operations were significantly hampered as the result. A significant source of the unrest was that people believed they, and their families, were being abandoned. As stated by Coast Guard Lt. Cmdr. Cheri Ben-Ishan: "Hospitals are trying to evacuate, [but] at every one of them, there are reports that as the helicopters come in people are shooting at them. There are people just taking potshots at police and at helicopters, telling them, 'You better come get my family.'²⁷"

3.2 COMMAND STRUCTURE

Figure 3 depicts the Incident Command, as currently specified by the NIMS.



²³ Ibid.

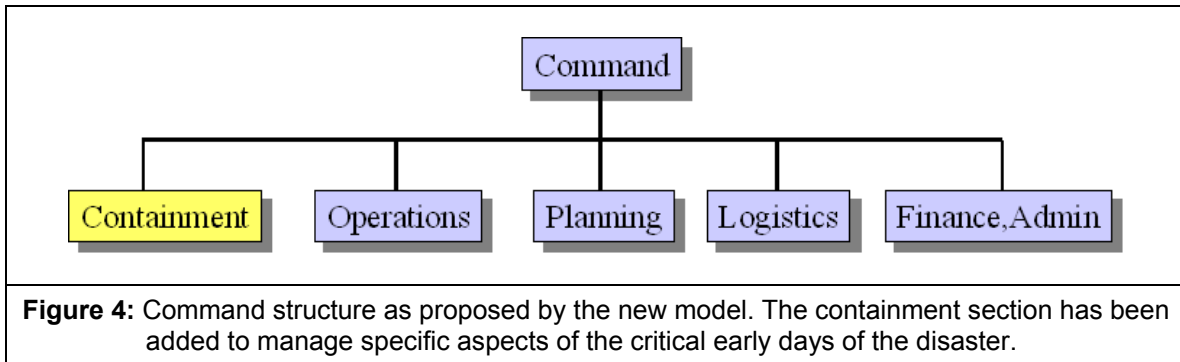
²⁴ Staff reporter(s), New Orleans police fire 51 for desertion, Associated Press, October 31, 2005, available on <http://www.msnbc.msn.com/id/9855340/>

²⁵ Also referred to as the "political" dimension by some researchers.

²⁶ We do not include preparation or relief phases and can offer no informed opinion on those. The focus of the statement here is the rescue phase only.

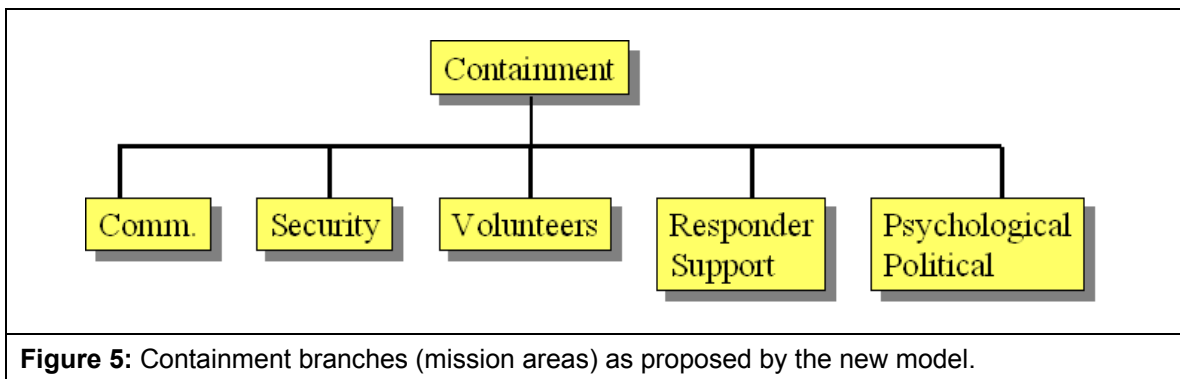
²⁷ See Appendix A.

The proposed model adds a new section, containment, as shown in Figure 4.



As implied by its name, the Containment operation is designed to “get a rapid handle” on the situation by performing specific missions such as focusing on security, communications infrastructure, and responder support.

Figure 5 depicts primary mission areas (branches in the NRP terminology) under the Containment section.



The key to success of containment operations are: (a) a small, extremely well defined missions areas and (b) full tactical control over containment assets, including personnel. Since its missions are extremely specific, it offloads work from the planning and operations sections as well – leaving the two, particularly the operations section, to manage the search and rescue operations.

3.3 MISSIONS AREAS

In our model the key missions for the containment section are as follows. They can be implemented, per NRP guidelines, as Task Forces.

3.3.1 COMMUNICATIONS

Katrina damaged all normal communications infrastructure, including landlines, in New Orleans. The only available communications channels were the media and private ham radio operators. In our model the National Guard would be tasked with providing after disaster communications without relying on any potential local assets. Once the communications channels are established, albeit perhaps on a temporary basis, other sections can perform their missions and report accurate damage assessment. Damage assessment will help form a level of situational awareness needed in requisitioning coalition assets.

3.3.2 SECURITY

In our model a key containment mission is security with two objectives: (a) to prevent a breakdown of law and order, and (b) to secure local supplies if needed. This mission will focus on preventing activities such as looting and relieve the other sections to continue with search and rescue operations without going back and forth, as we saw occur during Katrina. Furthermore, this mission area can be accomplished largely through presence, i.e. National Guards in the affected areas, and can be augmented by local private security contractors if needed.

3.3.3 VOLUNTEER MANAGEMENT

Any catastrophe will create a large group of emergent volunteers, in addition to those who volunteer with organizations such as the Red Cross. Another emergent volunteer group is off-duty, retired, or out-of-area professional responders who self-dispatch. In catastrophic events self-dispatched responders do not always report to their own active unit (or attached to one), as occurred during the initial hours of WTC response. Various aspects of emergent and self-dispatched volunteers were captured through the 9-11 dispatch tapes and oral history²⁸.

The volunteer community is both a blessing and a problem at the same time. On the one hand, the availability of additional manpower can relieve professionals to focus more on rescue efforts. On the other hand, the volunteers must be organized and often re-trained in short orientation sessions, before deployment. This mission area acknowledges this issue and becomes a central volunteer processing center, again relieving other sections from having to spend time on this issue.

3.3.4 RESPONDER SUPPORT

This mission area will focus on the responders themselves. The mission's primary focus is to ensure responders are cared for. This will, in our opinion, significantly reduce issues such as desertion, or working beyond a productive point. The responder support task force will, in our opinion, also be instrumental in supporting efficient and rapid force integration as new personnel become available.

3.3.5 PSYCHOLOGICAL AND POLITICAL

The NRP explicitly states that the local Chief Executive is the mayor or the local tribal chief. We believe it is not realistic to expect a Mayor-General to suddenly materialize after a catastrophe. By the same token, it is unrealistic to attempt to train every mayor in the nuances of the NRP, NIMS, or emergency response. This is particularly true when we consider that a significant number of communities in the US have part-time mayors, that in many jurisdictions the mayoral role rotates among city council members, and that in almost all jurisdictions the city manager runs the city and the mayor, fundamentally, has a policy and strategic role.

Yet after a disaster, mayors become the face of the city and, both for the people affected and the rest of the country, as did Mayor Nagin with Katrina and Mayor Giuliani with the WTC attacks. Keeping in mind that the survivors of the event will likely have access to at least radio, mayor's performance has an enormous impact on how the community as a whole behaves²⁹.

The only objective here is to help console and calm the masses at the face of a very devastating catastrophe. A significant portion of this can only be done by the mayor – he or she *is* the face and voice of the affected community during the critical initial stages of the event. This branch is therefore tasked with supporting the mayor and the mass communications.

²⁸ http://graphics8.nytimes.com/packages/html/nyregion/20050812_WTC_GRAPHIC/met_WTC_histories_full_05.html

²⁹ Editors of Time Magazine, Hurricane Katrina: The storm that changed America, Time Publishing, 2006, ISBN: 1933405139

3.4 CONTROL

The containment section commander will be given tactical³⁰ control by the unified Incident Command (UIC). This limitation ensures that the containment section will not get pulled into tasks outside of its specific mission areas. It also enables the section commander to deploy task forces (full attachments of heterogeneous forces such as the National Guard or the Red Cross) with specific missions and delegate the commander on the ground tactical control to execute those missions. Furthermore, the containment commander can take advantage of the fact that there is no requirement for the controlling authority to provide logistical support for the assigned forces, further enhancing its agility since the delegated team will rely on its own logistical supply chain to accomplish the assigned mission. It should be noted that the attachment in our model may be persistent, such as may be the case of deploying the National Guard for law enforcement purposes, or dynamic and opportunistic, such as deploying a fire company for a specific mission, e.g. assessing the safety of the building to use as the communications hub or a shelter.

We anticipate that the local emergency management official or expert – such as a senior member of the local Office of Emergency Management, will command the containment section. This frees the other experts within the local emergency management infrastructure to tend to matters beyond the 72-hour horizon. We further expect that the mayor will be closely associated with the containment section.

3.4.1 RAPID FORCE AND RESOURCE INTEGRATION

The proposed model expedites force and resource integration during the critical initial stage of disaster response. The model accomplishes this since personnel and resources can be attached to the containment section in whole, therefore working within their familiar C2 environment, while supporting an overall objective by executing a specific mission. This allows various teams or units from different organization to be deployed primarily based on their capabilities on an as-needed basis.

This process is rather straight forward during the containment phase due to: (a) small number of mission areas, and (b) the likelihood that the majority of available resources during the containment phase are probably specialized with specific capabilities. Example of likely available resources during the first 72 hours may be the local or neighboring fire and medical units, and the National Guard. The former two clearly have specific capabilities. Similarly, while the National Guard provides a range of capabilities, they are only deployed by the containment section to support communications or law enforcement.

There is a challenge in duplicating the same approach across all sections. This is because it may not always be possible to create small, capability-based teams.

3.5 INCIDENT MANAGEMENT IMPLICATIONS

3.5.1 SECURITY

It is critical that the National Guard be activated and subsequently controlled by the Governor and not by the President. The National Guard is unique in that it is neither entirely federal, nor entirely a state organization but can function as part of either. The key to Guard deployment is whose control they are operating under, i.e. the Governor or the President. If the Guard is under the governor's control they can perform law enforcement duties³¹. As a purely federal element, e.g. under the President's control, the Guard is not able to perform in that capacity^{32, 33}.

³⁰ For Completeness: Tactical control is the command authority given to a subordinate commander that they can, in turn, delegate to lower echelon commanders.

³¹ Posse Comitatus Act. The Guard must be operating under Title 10 or Title 32 in order to provide law enforcement duties.

³² The Guard may perform these duties under express authorization by the Constitution or Congress.

³³ There is a pay and benefit difference. The secretary of defense, however, can authorize Title 32 where Guards under the state control qualify for federal pay and benefits.

In our model, during the first 72 hours the Guard provides law enforcement in support of sustaining the citizens as well as supporting rescue efforts. Even at the remotest areas, communities in the US are able to sustain themselves for three or four days assuming supplies are not destroyed, hoarded, looted, or otherwise unavailable. These supplies are easily recoverable from super markets, drug stores, convenience stores, building supply stores, large retailers, etc. A significant part of security operations after a massive disaster must, in our opinion, be protection, and if needed, acquisition and rationing of available supplies until the gravity of the situations is fully apparent or until federal help can be delivered. This will leave the local law enforcement to support search and rescue operations, as needed. This further enables the local authorities, using local personnel, conduct or support damage assessment tasks. Damage assessment is a critical task that provides substantial intelligence that can help the DOD with gaining a reasonable situational awareness needed to accurately estimate what capabilities to deploy. Finally, in our opinion, this significantly reduces the feelings of mass abandonment that precedes break down of law and order.

3.5.2 COMMUNICATION

Katrina revealed a significant gap in the NRP in terms of communications; according to the GAO's report³⁴ the communications assets were not identified by the NRP or the DHS or the DOD. This resulted in a series of unfortunate decisions, such as the deploying of some Guard units with 30% of their communications personnel and 50% of their communications equipment. In our model, we propose that the National Guard be charged with providing a full-spectrum civilian and military communications support in disaster areas.

3.5.3 FORCE MAINTENANCE

Police desertions during Katrina showed that the assumption that local first responder can rise above personal issues may not always be true. We believe assigning a small task force to systematically care for the first responders during the first three days of a catastrophic event will significantly improve response efficiency until help arrives. Knowing that a group is focused solely on their needs may not only prevent desertions, but also exhaustion, and help with force integration as new personnel arrive.

3.5.4 PSYCHOLOGICAL AND POLITICAL SUPPORT

Indirectly, Katrina also revealed the need for mass psychological support after a disaster. Specifically, New Orleans teetered at the brink of total disintegration of civil command once information was replaced with rumors. What followed, looting as well as unrest in mass shelters such as the Superdome, hampered the rescue efforts. We believe a relatively small effort to provide a level of psychological support to the masses may significantly impact rescue operations in a positive way.

We further believe that the expectation that mayors become disaster managers is not realistic. As such, we believe it is necessary to provide political support to the local civil officials about the intricacies, legalities, and procedures involved in a massively scaled coalition disaster response.

3.6 RELEVANT ISSUES

3.6.1 TECHNICAL

The model poses a number of technical issues such as having the right radios to allow communications between the diverse groups. While this is a system-wide issue, it is more easily managed within the containment period due to the assigning of communications responsibility to the National Guard. It is our expectation that, should this model be adopted, the Guard will have appropriate specifications and can, in effect, provide interoperability support if needed³⁵. However, the interoperability is not limited to radio communications. There are, for example, different specifications for fire fighting equipment that require different tools in different jurisdictions to, for example, operate various fire apparatus. These issues are

³⁴ Ibid.

³⁵ FEMA and the federal government are spending significant amounts of money to solve cross-organizational interoperability issues which, we expect and hope, will become less of a factor in coalition response.

significantly harder to sort out but the fact that the containment section can dynamically mix and match services in execution of a small set of specific missions, should alleviate most of these challenges. Finally, Internet connectivity, more specifically mapping and GIS-based software, has become an integral part of emergency response. In our opinion the Guard should also provide wireless Internet capability as part of the communications infrastructure support.

3.6.2 LEGAL

Using the National Guard for law enforcement introduces a number of legal problems. Since presumably the Guard will be operating under emergency powers during the initial stages of the response, most of these issues should be benign. It is, however, an important consideration and one that must be resolved before a disaster strikes. The key to Guard's ability to perform law enforcement is that it is reporting to the state's Governor. The model allows splitting of the Guard by placing some under the governor's and others under the military command³⁶. It also enables transitioning of the Guard units to federal command once the containment operations are concluded.

3.6.3 CULTURAL

Most Americans do not support the military's involvement in civilian affairs. As a result, there is generally a lack of awareness about the military's role and function once deployed within our borders. The lack of awareness may lead to situations where a particular segment of community feels neglected because "the patrol just went by without doing anything." This aspect of the containment operations is a challenge, whether a fire engine goes by without stopping or a military patrol. As we saw during Katrina, the angst over perceived neglect resulted in situations where the victims further hampered the rescue effort by attacking rescue helicopters or boats. The key is communications and education – and should in our opinions be addressed as part of the pre-disaster planning but be actively reinforced during the event by the psychological mission area.

3.7 CONCLUSIONS

We presented a command and control model that extends the National Response Plan (NRP) and the National Incident Management System (NIMS) to specifically focus a set of resources for the purpose of managing the first 72 hours of a catastrophic event. This period, generally accepted as the most critical response period, is typically hampered by discovery of multitude of problems in the aftermath of a catastrophic event. We used the response cycle of the hurricane Katrina to establish the foundation for the proposed model. The model is fundamentally a "central control, distributed execution" model but was intentionally developed with the NRP and the NIMS in mind. As such, the proposed command and control structure can easily be folded into both, for example as an Annex to the NRP.

Benefits of the proposed system are observational and hypothetical at this point and require further research to validate. Fundamentally, however, it can be observed that reassigning the New Orleans police away from rescue operations to combat looting had a quantifiable cost to the rescue effort. It further can be hypothesized that components of the proposed containment section, specifically the security and psychology branches, may have prevented New Orleans from spiraling as far as it did. Since restoring civil order costs a lot more than prevention of chaos, the model suggests a reasonable return in terms of cost vs. benefit. In addition, the responder support branch may have reduced the number of desertions within the New Orleans Police ranks, further enhancing the potential benefits of the proposed model.

³⁶ Legal issues become a bit more complex in this approach but may be overcome if Guard units from different states are assigned to different commands. Pay and benefits issue, however, may create more complexity as doing so will create two different pay scales for Guardsman responding to the same event.

3.8 ACKNOWLEDGEMENTS

This work was supported in part by a Small Business Innovation Research award from the US Air Force, under contract number FA8750-05-C-0085. The views and opinions presented in this paper represent the views of the authors and do not, necessarily, represent the views of the DOD.

We would like to extend our gratitude to Dr. John Salerno of the Air Force Research Laboratories and Mr. Zeno Franco, affiliated with the Pacific Graduate School of Psychology for extremely helpful insights as well as invaluable suggestions after reviewing the draft manuscript.

3.9 REFERENCES

Provided in the footnotes.

APPENDIX A

HURRICANE KATRINA RESPONSE³⁷

BACKGROUND

On August 28, at 10:00 AM CDT, the National Weather Service (NWS) field office in New Orleans issued a bulletin predicting catastrophic damage to New Orleans and the surrounding region. Anticipated effects included, at the very least, the partial destruction of half of the well-constructed houses in the city, severe damage to most industrial buildings, rendering them inoperable, the "total destruction" of all wood-framed low-rise apartment buildings, all windows blowing out in high-rise office buildings, and the creation of a huge debris field of trees, telephone poles, cars, and collapsed buildings. Lack of clean water was predicted to "make human suffering incredible by modern standards". It was also predicted that the standing water caused by the storm surge would render most of the city uninhabitable for weeks and that the destruction of oil and petrochemical refineries in the surrounding area would spill waste into the flooding. The resulting mess would coat every surface, converting the city into a toxic marsh until water could be drained. Some experts said that it could take six months or longer to pump all the water out of the city.

In anticipation of widespread destruction caused by Hurricane Katrina, Max Mayfield, the director of the National Hurricane Center, telephoned New Orleans Mayor Nagin on the night of August 27 to express his extreme concern, and on the following day, made a video call to U.S. President George W. Bush at his farm in Crawford, Texas about the severity of the storm.

With the hurricane threatening the Gulf Coast, many New Orleans residents started taking precautions to secure their homes and prepare for possible evacuation on Friday the 26th and Saturday the 27th. By mid morning on the 27th, many local gas stations which were not yet out of gas had long lines. Nagin first called for a voluntary evacuation of the city at 5:00 PM on August 27 and subsequently ordered a citywide mandatory evacuation at 9:30 AM on August 28, the first such order in the city's history. In a live news conference, Mayor Nagin predicted that, "the storm surge most likely will topple our levee system," and warned that oil production in the Gulf of Mexico would be shut down. President Bush made a televised appeal for residents to heed the evacuation orders, warning, "We cannot stress enough the danger this hurricane poses to Gulf Coast communities." Many neighboring areas and parishes also called for evacuations.

Although Mayor Ray Nagin ordered a mandatory evacuation of the city, many remained voluntarily, which a CNN writer described as "gambling with their own lives." Reasons were numerous, including feeling their homes or the buildings they planned to stay in offered sufficient protection, lack of financial resources or access to transportation, a feeling of obligation to protect their property, or fearing that the tribulations of evacuation (which many went through the previous year with Ivan) were more of a hazard than the hurricane risk. A "refuge of last resort" was designated at the Louisiana Superdome. Beginning at noon on August 28 and running for several hours, city buses were redeployed to shuttle local residents from 12 pickup points throughout the city to the "shelters of last resort." Several hundred school buses were also available, yet they were not deployed, apparently because not enough drivers could be found.

By the time Hurricane Katrina came ashore early the next morning, approximately one million people had fled the city and its surrounding suburbs by the evening of August 28, while about 20,000 to 25,000 people remained in the city, taking shelter at the Louisiana Superdome, along with 550 National Guard troops. While supplies of MREs and bottled water were available at the Superdome, Nagin told survivors to bring blankets and enough food for several days, warning that it would be a very uncomfortable place. As the elevation of the Superdome is about three feet (1 m) above sea level, the forecasted storm surge was predicted to cause flooding on that site. Survivors were told to keep out of the lower levels of the structure, for fear it would be flooded.

³⁷ This section was copied, almost verbatim, from one or more sections of wikipedia, since the source offered a reasonable factual summary of the events without any opinions.

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The entire southeastern Louisiana region was declared a disaster area by the Federal Government before Hurricane Katrina made landfall, and FEMA prepositioned 18 disaster medical teams, medical supplies and equipment, urban search and rescue teams along with millions of MREs, liters of water, tarpaulins, and truckloads of ice.

Hurricane Katrina made its second and third landfalls in the Gulf Coast region on August 29, 2005 as a Category 3 hurricane.

On Monday August 29 area affiliates of local television station WDSU reported New Orleans was experiencing widespread flooding due to several levee breaches, was without power, and that there were several instances of catastrophic damage in residential and business areas. Entire neighborhoods on the south shore of Lake Pontchartrain were flooded.

By 11:00 p.m. on August 29, Mayor Nagin described the loss of life as "significant" with reports of bodies floating on the water throughout the city, though primarily in the eastern portions. The National Guard began setting up temporary morgues in select locations.

COMMUNICATIONS FAILURES

Coordination of rescue efforts August 29 and August 30 were made difficult by disruption of the communications infrastructure. Many telephones, Internet access, including most cell phones, were not working due to line breaks, destruction of base stations, or power failures, even though some base stations had their own back-up generators. In a number of cases, reporters were asked to brief public officials on the conditions in areas where information was not reaching them any other way.

All local television stations were disrupted. Local television stations, and newspapers, moved quickly to sister locations in nearby cities, yet New Orleans CBS-affiliate WWL-TV was the only local station to remain on the air during and after the storm. Broadcasting and publishing on the Internet became an important means of distributing information to evacuees and the rest of the world.

Amateur radio provided tactical and emergency communications and handled health-and-welfare enquiries.

By September 4, a temporary communications hub was set up at the Hyatt Hotel in downtown New Orleans.

CIVIL DISTURBANCES

In the aftermath of Hurricane Katrina, looting, violence, and other criminal activity became serious problems. With most of the attention of the authorities focused on rescue efforts, the security in New Orleans degraded quickly. By August 30, looting had spread throughout the city, often in broad daylight and in the presence of police officers. "The looting is out of control. The French Quarter has been attacked," City Councilwoman Jackie Clarkson said. "We're using exhausted, scarce police to control looting when they should be used for search and rescue while we still have people on rooftops." Incapacitated by the breakdown of transportation and communication, as well as overwhelmed in terms of numbers, police officers could do little to stop crime, and shopkeepers who remained behind were left to defend their property alone. Looters included gangs of armed gunmen, and gunfire was heard in parts of the city. Along with violent, armed robbery of non-essential valuable goods, many incidents were of residents simply gathering food, water and other essential commodities from unstaffed grocery stores. There were also reports of looting by some police officers. There was also significant looting reported continually in areas of the city with few, if any permanent residents, such as the Lakeview, Gentilly, and the Midcity regions. "Sniper fire" was also reported throughout the city, targeted at rescue helicopters, relief workers, and police officers. One of the possibilities of the sniper fire was possibly resistance to relocation or evacuation.

One report of violence involved police shooting six people on the Danziger Bridge, which carries the Chef Menteur Highway across the industrial canal, who were reportedly attacking contractors of the U.S. Army Corps of Engineers involved in the 17th Street Canal repair.

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Looting and violence was also hampering efforts to evacuate the Tulane University medical center, as well. Looters in boats with guns had attempted to break into the hospital but were repelled by hospital staff. "If we don't have the federal presence in New Orleans tonight at dark, it will no longer be safe to be there, hospital or no hospital," Acadian Ambulance Services C.E.O. Richard Zuschlag told CNN. Several news sources reported instances of fighting, theft, rape, and even murder in the Superdome and other refuge centers.

A significant number of initial reports of mass chaos, particularly in stories about the Superdome, were later found to be exaggerated or rumor. In the Superdome for example, the New Orleans sex crimes unit investigated every report of rape or atrocity and found only two verifiable incidents, both of sexual assault. The department head told reporters, "'I think it was urban myth. Any time you put 25,000 people under one roof, with no running water, no electricity and no information, stories get told.'" In a case of reported sniper fire, the "sniper" turned out to be the relief valve of a gas tank popping every few minutes. Additional acts of unrest occurred following the storm, particularly with the New Orleans Police Department. In the aftermath, a tourist asked a police officer for assistance, and got the response, "Go to hell, it's every man for himself." Also, many New Orleans police officers deserted the city in the days before the storm, many of them escaping in their department-owned patrol cars. This added to the chaos by stretching law enforcement thin. Additionally, there were confirmed cases of police officers stealing vehicles from the Sewell Cadillac car dealership, further adding to the confusion. Several NOPD officers were arrested weeks after Katrina for suspicion of vehicle theft.

REGAINING CONTROL

On August 31, New Orleans's police force was ordered by mayor Nagin to abandon search and rescue missions and turn their attention toward controlling the widespread looting. The city also ordered a mandatory curfew. Mayor Nagin called for increased federal assistance in a, "desperate S.O.S.," following the city's inability to control looting and was often misquoted as declaring martial law in the city, despite there being no such term in Louisiana state law (a declaration of a state of emergency was instead made). On the same day, Governor Kathleen Blanco announced the arrival of a military presence, stating that they, "[knew] how to shoot and kill and [expected that] they [would]." Despite the increased law enforcement presence, crime continued to be problematic. Several armed attacks on relief helicopters, bus convoys, and police officers were reported, and fires erupted around the city at stores and a chemical storage facility. By September 1, 6,500 National Guard troops had arrived in New Orleans, and on September 2, Blanco requested a total of 40,000 for assistance in evacuation and security efforts in Louisiana.

Command and Control During the First 72 Hours of a Joint Military- Civilian Disaster Response

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Background Hurricane Katrina

- First test of large scale military-civilian response collaboration
- Advance warning
- New Orleans rapidly disintegrated
 - Almost total loss of civil authority
- The first 72 hours were pivotal

Katrina Time Line

August 29, 2005	<ul style="list-style-type: none">• Katrina makes landfall (8AM CDT)• 20,000+ in Superdome• 551 National Guardsmen in Superdome• New Orleans flooded (levee breach)• Communications infrastructure lost• New Orleans Airport closed• Most roads to/from New Orleans are under water• Mayor predicts "significant" loss of Life• Looting begins
August 30, 2005	<ul style="list-style-type: none">• Mayor projects death toll at thousands• Communications infrastructure still lost• FEMA and Louisiana Governor argue about who should provide busses¹• Looting spreads throughout the city
August 31, 2005	<ul style="list-style-type: none">• New Orleans police ordered to abandon Search & Rescue• Evacuation plan countermanded by DOD: 24 hour delay while DOD assumes control²• Communication infrastructure still unavailable• New Orleans is almost in anarchy with total loss of control by the civil authorities• Persistent media coverage fuels national anger over evacuation delays.

First 72 Hours

- Generally accepted as the most crucial period
 - The larger the event the more likely that citizens or communities are on their own
 - Even with advance warning options are limited
 - Can't stage on storm's path
- Response continuum
 - Local responders
 - CERT/NERT
 - Red Cross
 - National Guard
 - Federal government

Models of Disaster Management

- Community Model
- Command and Control Model

Joint Disaster Response U.S.

- HSPD-5
 - NRP
 - NIMS
 - Military support to civil authorities
- The Guard
 - Under governor's command
 - Under president's command

Multiple C2s Must Blend

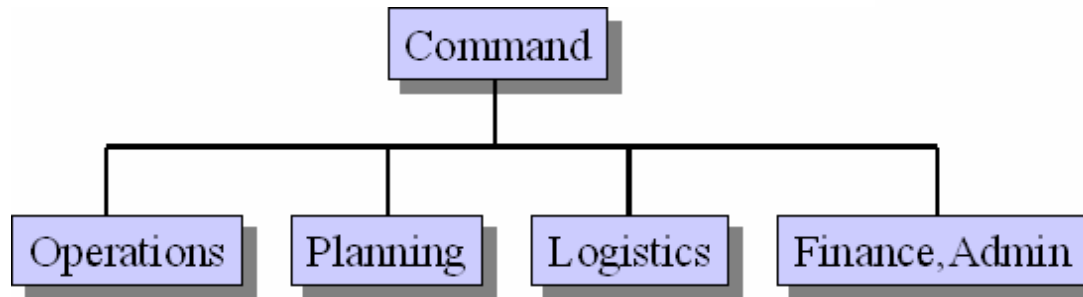
- Military C2
 - Support Instrument
- Civilian C2
 - Functional Instrument
- Incident Command
 - Organizational and Tasking Instrument

- External Influences
 - Media
 - Politics
- People
 - Local responders
 - Mayor-Generals
- Operational Factors
 - Difference C2 paradigms
 - Response vs. Assistance
- Interoperability
 - Purely technical issues

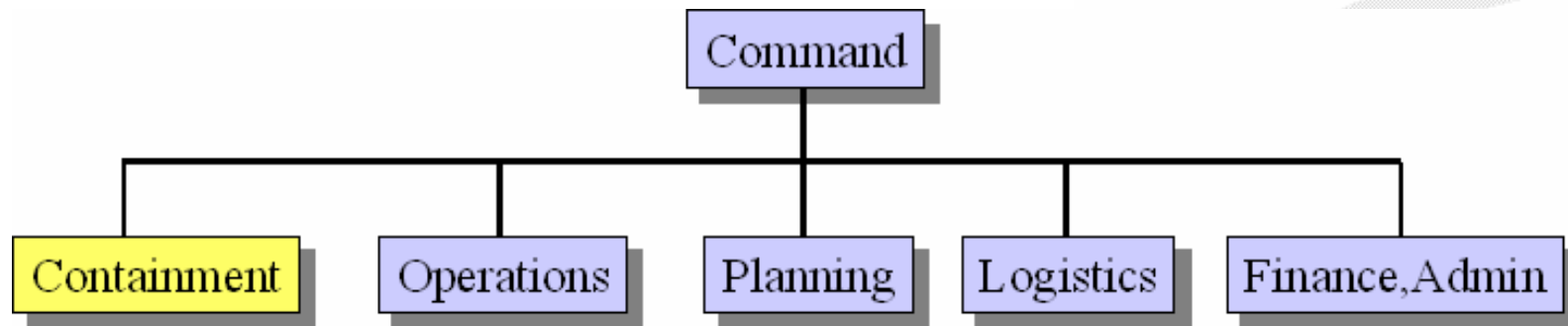
Proposed Model Principles

- Security
- Communications
- Local responders probably are also victims
- Psychological dimension

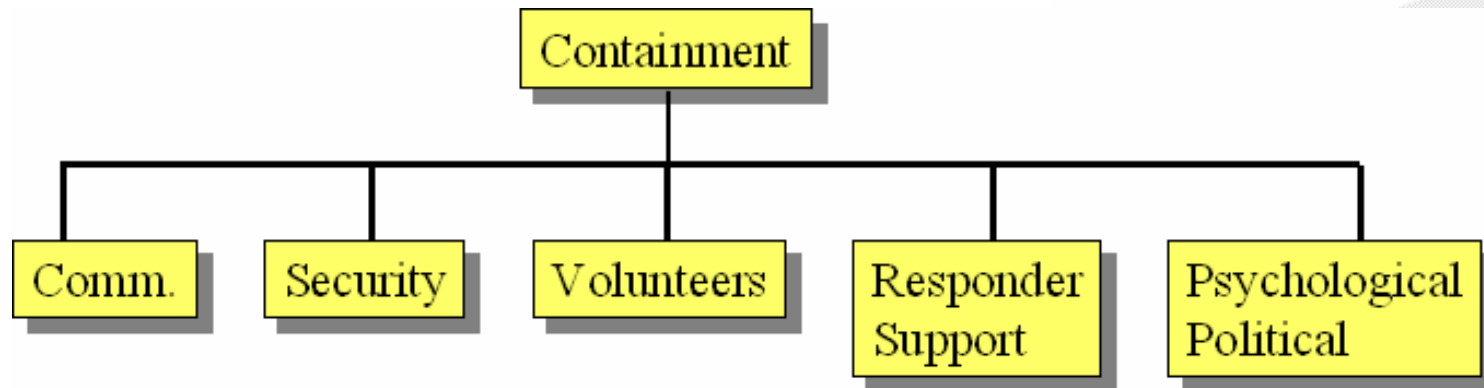
Current Command Structure



Proposed Command Structure



Mission Areas



- Tactical Control
 - Focused on the short-term
 - Teams can be attached in whole
 - Use their existing and familiar C2
 - Rely on their own logistics chain
 - Report through the Unified Commander
 - Fire companies
 - Guard units
 - Red Cross
 - Each team can operate within its own familiar op-tempo
 - Multiple teams can be dispatched for the same mission

NIMS Implications (First 72 Hours Only)

- Security
 - Local police
 - Contract local private security
 - The Guard (under Governor's command)
- Communications
 - The Guard
- Force Maintenance
- Psychological and political support
- Technical
- Legal
- Cultural

Conclusion

A central control, distributed execution model, as proposed here, could significantly improve collaborative military-civilian response to large disasters by acknowledging the importance of the first 72 hours and extending the NRP/NIMS model to accommodate the unique circumstances of this critical time period.



THANK YOU

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